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WHY REGENERATIVE AGRICULTURE HAS A BRIGHT FUTURE

by ROBERT RODALE



The current problems of agriculture are not permanent; they are a phase of readjustment to new realities. Those new realities concern markets, financing, environmental constraints, and especially the resources from outside the farm that have become such an important part of agricultural production. Among the solutions to current agricultural problems are returning to maximum use of internal resources, decreasing the dependence on external resources, and beginning the process of regeneration on all of our farms.

To understand the change that is going on in agriculture, people need to know the differences between internal and external resources, and they have to look at the whole span of agriculture over time, going back to its origin 10,000 years ago. (See chart on page 4.)

For approximately 9,900 years, all farmers used only their internal resources. There were no inputs of external resources like fertilizer, energy, pesticides, and seeds until about 100 years ago. The internal resources are paid for once by the farmer, or passed from generation to generation. They consist primarily of the land, rain, and sun; the family; the seed produced on the farm; animals reared on the farm; and indigenous management expertise.

The distinction between internal and external resources in agriculture have become very clear in the past few years. Rising energy costs and high production costs in general have focused the attention of farmers on the fact they buy these inputs at retail, so to speak, and sell their commodities at wholesale. So the cost of production using external resources and inputs is so high that farming in most situations becomes uneconomic without government subsidies. Internal resources therefore look much more attractive.

American farmers will always have to use some inputs of external resources. The same is largely true of agriculture

MR. RODALE'S SUMMARY
OF HIS ADDRESS TO THE
ASSOCIATES OF THE
NATIONAL AGRICULTURAL
LIBRARY AT ITS ANNUAL
MEETING, JULY 23, 1987

in the developing world. There are now more people in the world than can probably be fed using internal agricultural resources alone. However, we must stop using inputs in ways that diminish the vitality of the internal resources. That is exactly what has happened over the past 100 years. For example, a vast industry to synthesize nitrogen for fertilizer use was created, while farmers overlooked the fact that the air is 78% nitrogen, and that leguminous plants used in a rotation, or in intercropping and relay planting can capture very large amounts of that nitrogen for agricultural use at minimal cost.

Many other examples of the tremendous value of internal resources can be cited. Minerals can be recycled through the farm system. Irrigation water can be used much more frugally. Advances in photosynthesis will make much more effective use of the sun's energy.

Soon, people will be hearing more about what is now beginning to be called thought intensive agriculture. The first advances in that area are being made in weed control. The idea is to think carefully about all available strategies in the farm system that can deal with the problem and create production opportunities. Thought intensive weed control strives to use crop plants in innovating ways to avoid the need for herbicides. Greater planting density and relay cropping is used to crowd and shade out weeds. One method, already developed, is to plant soybeans within a standing crop of weeds, barley or other grain. The soybeans are planted in spring. The grain crop is harvested a few weeks later, and the soybeans then grow above the grain stubble. The farmer gets two crops in one season, and there is no cost for herbicides. Also, ground water contamination by herbicides is avoided.

Has a turning point in agriculture been reached? Are farmers beginning to learn new ways to use their internal resources successfully?

Yes, many are. Of course, the transformation of agriculture is far from complete, but in every state there are exam-

ples of the new breed of successful farmer. They are becoming extremely cost conscious, are reducing the use of external inputs, and are maximizing local market potential. Capacity of a farmer to create his or her own specific market strategy is an important internal resource that both individuals and groups of farmers in regions are using.

The idea and the practice of regeneration is also an important part of this farm transformation. Regeneration means the capacity of the natural environment to recover from disturbance. Farms that have been worn out and abandoned almost always begin to regenerate within a short period of time. There is a healing impulse in the natural world which can easily be seen in the recovery of abandoned land.

Why should this process of regeneration take place only outside the boundaries of commercial agriculture? That is the question that we at the Rodale Research Center and the Rodale Institute began addressing in 1981. We decided then that we would begin to create a new system of agriculture that included regeneration within it. Our goal was to find practical farming methods that could not only be in tune with regenerative impulses of nature, but enhance them.

That effort is beginning to show significant success. We have found, for example, that crop rotations, crop interplanting, and relay planting are remarkably regenerative. Regeneration in nature happens most rapidly in mixed communities of plants. Getting more different kinds of plants growing together on commercial farms has a similar regenerative effect.

Also, perennial plants are more regenerative than annuals. That is why we are putting great emphasis on the development of perennial grain producing plants [at the Rodale Research Center]. Some perennial grasses have been found to have some good seed producing capacity as well as vigorous and regenerative root systems. Some of the grain has remarkable culinary appeal, and the plants themselves are especially adapted for growing on hillsides or other areas subject to erosion.

As farmers become more aware of the potential of regenerative and thought intensive strategies, they will seek information and knowledge as the most valuable of all inputs into an agricultural system. Farmers will begin to see that information can be just as powerful a weed killer, for example, as any chemical. They will want more knowledge and understanding of the functioning of natural systems on their farms. They will need information, tailored to their specific situation, that will empower them to use internal resources to produce food and fiber more effectively.

In my opinion, we will need more and better agricultural libraries, but libraries must expect to go through a period of transformation as well. Probably questions will be raised about the relevance of professional literature in agricultural libraries. Can those articles in professional journals and all those scientific books be understood even by other scientists? Is the professional literature meant to be read at all, or is it primarily a storage place for data requiring extraordinary efforts to extract relevant information?

If information is truly to be a useful internal resource for farmers, professional literature will have to be tested more directly in the real world. Reports of experiments carried out for a short period of time in small plots may not be nearly as relevant to real farming systems as once thought. Farmers themselves may become more sophisticated as researchers. New ways may have to be developed to collect and report research information conducted on farms.

Finally, whole new subject areas may be included in the arena of farm production. One example is tourism. Agriculture is the leading industry in the world, but tourism is second. Tourism is growing much more rapidly than is agriculture, and is in fact becoming a very important source of income for many farmers. In the future there will be a great need for information about what may be called regenerative tourism. Most conventional tourism leads eventually to degeneration of the region being toured. Farm areas

seeking to boost their tourism industry will not want to see that happen, and there are ways to prevent it.

Another rapid growth area is in health. Until 100 years ago fats and sugars were very scarce in the food supply, and people expended large amounts of human energy to acquire the food sources containing small amounts of them. Modern agriculture has made them rich in these substances and abundant, but human metabolism is still geared to the scarcity experienced over the entire previous human history. Many of today's health problems are a direct result of modern agriculture's reversal of the scarcity/abundance ratio of these nutritional elements. As long as health is seen primarily as a challenge of treatment, there is no role in the health system for agriculture, but as health becomes primarily a challenge of prevention, then agriculture emerges as a primary health strategy. That trend is now happening, with dramatic effects on consumption of meat, fish, grains, vegetables, and fruits.

In conclusion, the goal of regenerative forms of agriculture in the developed countries is not to eliminate external inputs, but to decrease their use enough to allow farmers to run profitable businesses again and also to regenerate the resource systems on which the long-term viability of their farms depends. The goal of regenerative approaches to agriculture in less developed countries is to educate both farmers and farm policy makers to the tremendous importance of agriculture's internal resource systems. Good scientific efforts and sound educational efforts can cause the internal resource area to expand and become an even more solid foundation on which to base a productive agriculture.

Agriculture does have a great future, but we must be prepared to see change happen and to participate in the creation of that change. What makes the future look bright is the prospect of an ever expanding use of regenerative farming practices in agriculture.

RESOURCE SYSTEMS
FOR AGRICULTURAL PRODUCTION

INTERNAL	EXTERNAL
SOIL	HYDROPONIC MEDIUM
SUN - main source of energy	SUN - energy used as "catalyst" for conversion of fossil energy
WATER - mainly rain and small irrigation schemes.	WATER - increased use of large dams and centralized water distribution systems.
NITROGEN - collected from air and recycled	NITROGEN - primarily from synthetic fertilizer
MINERALS - released from soil reserves and recycled	MINERALS - mined, processed, and imported
WEEO & PEST CONTROL - biological & mechanical	WEEO & PEST CONTROL - with pesticides
ENERGY - some generated and collected on farm	ENERGY - dependence on fossil fuel
SEEO - some produced on-farm	SEEO - all purchased
MANAGEMENT DECISIONS - by farmer and community	MANAGEMENT DECISIONS - some provided by suppliers of inputs
ANIMALS - produced synergistically on farm	ANIMALS - feed lot production at separate location
CROPPING SYSTEM - rotations and diversity enhance value of all of above components	CROPPING SYSTEM - monocropping
VARIETIES OF PLANTS - thrive with lower moisture and fertility	VARIETIES OF PLANTS - need high input levels to thrive
LABOR - most work done by the family living on the farm	LABOR - most work done by hired labor
CAPITAL - initial source is family and community; any accumulation of wealth is reinvested locally	CAPITAL - initial source is external indebtedness or equity, and any accumulation flows mainly to outside investments

ROBERT RODALE

Born in New York, March 27, 1930, Mr. Rodale is the son of publisher J. I. Rodale, and Anna Andrews Rodale. On June 23, 1951, he married Ardath Harter, and has five children, Heather, Heidi, David, Maria, and Anthony. They live in Allentown near Emmaus, PA, where Rodale Press, is located. Mr. Rodale attended public schools in Allentown, and from 1947 to 1952, attended Lehigh University, where he majored in English and Journalism. About his beginnings in both agriculture and publishing, Mr. Rodale tells us:

"Just before World War II, when I was 11 years old, my father bought a 63 acre Pennsylvania farm, which he managed as the research center for the farm and garden magazines that he published until his death. But he didn't actually work the farm himself. That job was given to me

and to several very old hired men -- the only people he could hire during war-time. My chief instructor had actually met Abraham Lincoln. And he thought it important that I be taught the old ways of farming as well as what was then new, such as the use of tractors. My farm education therefore spanned the historic transformation of agriculture from largely hand and animal work to a modern industry.

"My father shaped my agricultural education largely through reading and conversation. The first agricultural book he gave me to read was *Farmers of Forty Centuries*, by Franklin Hyde King. Then he introduced me to the writings and correspondence of Sir Albert Howard, the British plant breeder and agronomist who created what my father began to call the organic system of farming. Our dinner table, every evening, was a seminar on what is today called resource-efficient agriculture.

"While still in college, I began editing our farm magazine and taking on some business responsibility in Rodale Press. That was in 1949. For the 38 years since then, I have worked continuously in both agriculture and as the manager of what has now become a rather large publishing business. My job has not always been easy. As any farmer knows, there are good years and not-so-good years. Many times I have worried about finances, and about being able to meet the payroll; and like most of us, I have also worried about the financial well-being of farmers."

In 1971, Mr. Rodale became Chairman of the Board and Chief Executive Officer of Rodale Press, Inc. By 1986, the company employed about 925 persons and had gross revenues of \$150 million. It publishes magazines, newsletters, and books, which help readers improve their quality of life, with emphasis on health, fitness, food, nutrition, farming, and gardening. For more than 30 years, Mr. Rodale has channeled his corporate resources into food production research aimed at developing economically and environmentally sound farming and gardening systems. (See RODALE, p.6, Col.1)

ACCESSING THE LITERATURE OF REGENERATIVE AGRICULTURE:

An Introduction by Jayne T. MacLean



USDA photo

As the limits to global resources become more evident, the concept of regeneration gains recognition. Nowhere is this more observable than in the field of agriculture. Suggested terms useful for finding literature references to regenerative agriculture and some of its related concepts include organic farming and gardening, sustainable or biodynamic agriculture, French intensive or, especially in Europe, biological agriculture. The USDA frequently uses the term low-input agriculture, which denotes reduction in external inputs of chemicals and energy. Cultivation practices such as intercropping or relay cropping, crop rotations, uses of legumes to supply soil nitrogen and uses of animal manures and green manures for soil enrichment are included. All these terms yield many references to choose from when used in searches of the AGRICOLA database.

The NAL staff has developed some searches of AGRICOLA in these subjects, which are available as free *Quick Bibliographies*:

Alternative Farming Systems: Economic Aspects, *QB 87-31*
Composts and Composting of Organic Wastes, *QB 87-41*
Double Cropping and Interplanting, *QB 86-78*
Hydroponics: Nutrient Film Technique, *QB 87-39*
Integrated Pest Management, *QB 87-58*
Legumes in Crop Rotations, *QB 87-44*

Organic Farming and Gardening, *QB 87-10*
Wastewater Irrigation, *QB 86-75*

Request *QBs* by title and number. Send a self-addressed mailing label to: Alternative Farming Systems Information Center, National Agricultural Library, Room 111, Beltsville, MD 20705

Periodicals which regularly feature articles on these subjects include: *Agroecosystems*; *Acres USA*; *American Journal of Alternative Agriculture*; *BioCycle*; *Biological Agriculture and Horticulture*; *Journal of Soil and Water Conservation*; *Natural Food and Farming*; *Rodale's Organic Gardening*; *The New Farm* (Regenerative Agriculture Association); and the World Watch Institute *Papers* series.

A few of the classic books which elaborate on both the philosophy and methodology of feeding the world using production systems that not only conserve natural resources but restore degraded soil and water are listed below. Most were published before the beginning of the automated AGRICOLA database where references to the recent literature are found.

Balfour, Lady Evelyn B. *The Living Soil*. Ed. 2. London: Faber & Faber, 1944. 248 p. [Exposition of the evidence for biological agriculture by a founder of The Soil Association, England.]

Easey, Ben. *Practical Organic Gardening*. London: Faber & Faber, 1955. 151 p. [Thorough and well documented.]

Howard, Sir Albert. *An Agricultural Testament*. London; New York: Oxford University Press, 1940. 253 p.

Howard, Sir Albert. *The Soil and Health: A Study of Organic Agriculture*. New York: Devin-Adair, 1947. 307 p. [The grandfather of the organic gardening and farming movement, from whom J.I. Rodale first received inspiration.]

Fukuoka, Masanobu. *The One-Straw Revolution: An Introduction to Natural Farming*. Emmaus, PA: Rodale Press, 1978. 182 p.

Hunter, Beatrice T. *Gardening without Poisons*. (See ACCESS, p.6. Col. 1)

ACCESS (from p. 5)

Boston: Houghton-Mifflin, 1964. 314 p.
[Biological control of insect pests.]


Jackson, Wes. *New Roots for Agriculture*.
San Francisco: Friends of the Earth,
1980. 155 p. [By the founder of the
Land Institute, Salina, KS.]

King, Franklin H. *Farmers of Forty Cen-
turies, or Permanent Agriculture in
China, Korea and Japan*. Emmaus, PA:
Rodale Press, 1973. 441 p. [Reprint of
1911 edition.]


Rodale, J. I. *Pay Dirt: Farming and Gar-
dening with Composts*. New York: Devin-
Adair, 1945. 242 p. [This and the
author's later works sparked and fueled
the organic movement in North America.]

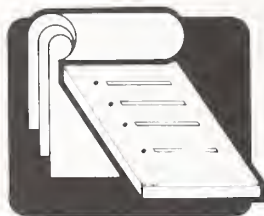
Wickenden, Leonard. *Gardening with
Nature*. New York: Devin-Adair, 1954.
392 p.

For additional information contact:

Jayne T. MacLean, Coordinator, Alterna-
tive Farming Systems Information Center,
National Agricultural Library, Belts-
ville, Maryland 20705, (301) 344-3704. 

RODALE (from p. 4)

Besides his activities in the farming and
publishing worlds, Mr. Rodale is the
founder and chairman of the "Cornucopia
Project," The People's Medical Society,
and The Rodale Institute, and is active
in many organizations including at pres-
ent: Low Resource Agriculture in Africa
Advisory Panel, Office of Technology As-
sessment, U.S. Congress; Adjunct Profes-
sor of Science, Technology, and Society,
Pennsylvania State University; and Direc-
tor, American Land Forum. He has also
served on the Advisory Committee, Acco-
keek Foundation; Shooting Sports Commit-
tee, U.S. Olympic Committee; Advisory
Board, Urban Bioshelter Project; and the
boards of organizations in the areas of
health care, education, land management,
environment, historic preservation,
sports, and business. He is the recipi-
ent of a number of awards for this work. 



NEW SERIALS RECEIVED AT NAL

Agriculture in Northern Ireland. Belfast:
Dept. of Agriculture, Advisory Services.
m. Vol. 1, No. 1- October 1986-
S220.5.A47

Bioprocess Engineering. New York:
Springer-Verlag. s-a. Vol. 1, No. 1-
1986- TP248.3.B563

*Choices: the Magazine for Food, Farm and
Resource Issues*. Herndon, VA: Am. Agr.
Econ. Assoc. q. Premiere ed. 1986-
HD1751.C45

*Geographical Abstracts. A: Landforms
and the Quaternary*. Norwich, CT: Geo Ab-
stracts. 6/yr. No. 1- 1986-
GB400.G4


Journal of Natural Rubber Research. Kua-
la Lumpur: Rubber Res. Inst. of Malaysia.
q. Vol. 1, No. 1- March 1986-
SB291.H4J68

*Die Makromolekulare Chemie. Macromolec-
ular Symposia*. New York: Huthis & Wepf.
b-m. No. 1- January 1986-
QD281.P6M35

*Nutrition in Clinical Practice: Official
Publication of the American Society for
Parenteral and Enteral Nutrition*. Balti-
more: Williams & Wilkins. b-m. Vol. 1,
No. 1- February 1986-
RM222.5.N87

Plant Biology. New York: A. R. Liss.
irr. Vol. 1- 1986-
QH301.P535

Progress in Protein-Lipid Interactions.
New York: Elsevier. irr. Vol. 1-
1985- QP552.L5P76

*The Public Garden: the Journal of the
American Association of Botanical Gardens
and Arboreta*. Swarthmore, PA: The Asso-
ciation. q. Vol. 1, No. 1- January
1986- QK71.P83 

ASSOCIATES NAL ANNUAL MEETING, JULY 23, 1987

(Right) Robert Rodale, the luncheon speaker, receives a gift box of "Botanica" notecards and a "Flower" address book from Joseph N. Swab, Executive Secretary of the Associates.



(Below, l-r) Deborah Hanfman and Lee Decker receive awards from Sigma Xi, the national honor society of scientists, for development of AquaRef, an expert system on aquaculture. Foster Morrison, past-President of the D.C. Chapter, makes the presentation.

(Above) Maria Pisa (c), receives a Special Recognition Award for past service as Executive Secretary from Wayne Rasmussen, Associates President (r), and Joe Swab (l), while Board member, Sarah Thomas, leads applause.



(Above, l-r) Award winners Maria Pisa, Lee Decker, Donna Jean Fusonie, and Deborah Hanfman. (Right) Alan Fusonie, who was not present to receive his award. The Fusonies received Special Recognition Awards for 10 years of service as editors of the *Journal of NAL Associates*.





INFORMATION CENTERS...

...WHAT'S NEW

AGRICULTURAL TRADE AND MARKETING INFORMATION CENTER FORMED

NAL has established an Agricultural Trade and Marketing Information Center, focusing on agribusiness, countertrade (barter), exports, and trade development. The new unit is the 12th specialized information center to be established at the Library in recent years.

Agricultural trade and marketing has become an important global issue with new emphasis on trade development in Third World countries and foreign marketing through U.S. farming cooperatives. The Center was formed in response to the concern of policy makers, agricultural experts, farmers, and consumers for U.S. export decline, implications of world events, and shifting global trends.

Utilizing the worldwide resources of the NAL collection, the Center will organize and disseminate information to interested users, and facilitate communication and cooperation between USDA, private institutions and organizations, and users that have similar or allied interests. NAL is presently working to ensure that all relevant agricultural trade and marketing literature of the world is indexed and accessible in AGRICOLA or other bibliographic services.

At the present time, much of the work of the Center is being accomplished with existing NAL staff and funds. Additional resources will enable NAL to expand its activities even further. The Library seeks support for expansion in the following areas:

Collection Development. To identify and acquire new books, journals, audiovisual materials, and computer software in the subject areas of agricultural trade and marketing, agribusiness, countertrade,

and trade development. To locate and acquire outstanding historical collections. To enter these acquisitions into AGRICOLA and other computer database systems, making publications available nationally and internationally through interlibrary loan.

Information Products. To develop consumer/researcher finding aids such as directories of resource persons, institutions, professional associations, and current research as well as guides to the literature such as serial lists, bibliographies, pathfinders, and other selected lists.

Outreach. To increase the awareness of the availability of NAL products and services through professional contacts among institutions and individuals with international and national responsibilities in agricultural trade and marketing. To utilize cooperative efforts to expand resources especially through development of a database directory on agricultural trade and marketing. To discuss and develop programs on current, international, and critical issues through teleconferences with extension services, land-grant universities, and other institutions.

Public Services. To provide expanded information services through local and regional networks for responding to consumer and scientific inquiries.

For further information, contact Mary Lassanyi, Coordinator, Agricultural Trade and Marketing Information Center, National Agricultural Library, Room 304, Beltsville, Maryland 20705. (301) 344-3704.

HOME ECONOMICS COLLECTION EXPANDED AT NAL

The National Agricultural Library is significantly expanding its collection of materials in the field of home economics. This action benefits Cooperative Extension personnel, home economics researchers, educators, and users of the Library and three of its specialized information centers: Family; Fiber and Textiles; and Food and Nutrition.

In addition to the substantial number of food, nutrition and management materials, the home economics collection includes recent resources on human and child development, family relationships, textiles and clothing, housing, household furnishings and equipment, and consumer economics. Monographs, serials, instructional programs, audiovisuals, extension publications, and unpublished documents are currently being added to create a collection that is national in scope.

The home economics acquisitions are entered into AGRICOLA, and searchers will find keywords similar to those used in the *ERIC Thesaurus*. NAL uses the *CAB Thesaurus* as its official controlled vocabulary, the second edition of which will be published later this year.

NAL has identified ways in which libraries and professionals can assist with the development of this national collection. To provide collection development assistance or to request home economics information, please contact: Kathleen Hayes, Certified Home Economist, National Agricultural Library, Beltsville, MD 20705, (301) 344-3719.


FOOD IRRADIATION CENTER LOANS EXHIBIT AND AUDIOVISUALS

The Food Irradiation Information Center loans a table-top exhibit and VHS videotapes in its developing educational program to prepare the public for irradiated products. For consumers, the Center offers two video topics: "Fresh Hawaiian Papaya Consumer Test," and "Extending the Harvest." Professionals in food and nutrition may borrow several tapes on the legislation and on the technology behind the process.

The table-top exhibit highlights the purposes of food irradiation and the foods most likely to be processed by this method. Potential borrowers should include in their requests the date(s) of the event, type of audience, theme or topic of the program, the name, address and phone number of a contact person who will be responsible for the exhibit, and the

address and phone number for the meeting site. They should also make arrangements for the exhibit at least three months in advance of the date of the program; the high demand months are February through April, September, and October.

The contact person will be responsible for returning the exhibit by the specified date, making the shipping arrangements, and paying all associated costs. The four-panel exhibit weighs approximately 62 pounds, and the dimensions of the shipping case are 44"x34"x8". NAL will also send 50 copies of related handouts, unless otherwise instructed.

For further information contact: Carole J. Shore, Food Irradiation Information Center, National Agricultural Library, Room 304, Beltsville, Maryland 20705, (301) 344-3719. 

CATALOGING INTERNS

Mo hamed Taleb of Yemen (r) and Hsiao-ling Chou of Taiwan (below) have spent five weeks each as interns in Cataloging. Both are library science students, Mr. Taleb



photo: J. Swab

at the University of Arizona and Ms. Chou at the University of Maryland. They are working on Arabic & Chinese language backlogs, respectively. Ms. Chou is also writing a paper on "The Uses of Barcoding in Technical Services."



EDNA LIU RETIRES




USDA photo

Edna Liu receives an award from Joseph H. Howard, NAL Director, at a recent awards ceremony.

On May 29, Edna Liu retired with 28 years of Federal Government service, 20 of which were in the National Agricultural Library. After service as a librarian for the Department of the Navy, she came to NAL as a cataloger of Oriental materials, and her outstanding work will be greatly missed by the Cataloging Branch.

Miss Liu, who was born in China, also frequently volunteered to orient the many delegations from China who visit NAL annually to local libraries, the DC area, and NAL. In this roll she often provided translation services to both NAL and the visitors.

Not only does Miss Liu host travelers, but her own extensive travels have taken her to every continent with the exception of South America. "I haven't been there yet," Miss Liu said, "but it's in my plans now that I have the time." Her first retirement trip, however, was to Vancouver, Canada, and she also visited relatives in California.


Her friends and co-workers gathered recently to present Miss Liu with a gift and to celebrate with her the occasion of her retirement. 

BATHA INTERNS AT NAL IN EXPERT SYSTEMS



Frank M. Batha, Jr., a graduate student from Southern Illinois University (SIU), has spent much of his summer at NAL as an intern in the Department of Agriculture's internship program, administered in the Secretary's Office. This is the second summer he has been in the program. Last summer he worked in the area of small farms and rural development with Howard W. Kerr, Small Scale Agriculture Program Manager.

This summer Mr. Batha has been working with Samuel T. Waters, Associate Director of NAL, developing an expert system in U.S. agriculture and related statistics. He concentrates on references to statistical sources, special studies, and historical studies emphasizing agricultural statistics. His primary interest in this project is the automation of information sources, and utilizing new information age developments to benefit small and family farmers, small agribusinesses, and local agribusiness services.

At SIU, Mr. Batha, will be working simultaneously on an MBA and a masters in agribusiness economics. He previously graduated from the University of West Florida with an MA in history. A retired U.S. Marine Corps Major, he served as a helicopter pilot, including duty in Viet Nam. Originally from southern Illinois, he is planning to move there with his wife and five children. 

NAL AT ALA, SAN FRANCISCO

photo: J. Swab



(Above) Joseph H. Howard, NAL Director, chairs the NAL meeting with land-grant and field librarians on June 30 at the American Library Association Meeting in San Francisco. (Right) Deborah Hanfman, Coordinator of the Aquaculture Information Center, and Idalia Acosta, Head, Cataloging Branch, take a turn at staffing the NAL exhibit. (Below right) Deborah Hanfman, who chaired the Aquaculture Network meeting following the meeting above, demonstrates AquaRef, the expert system she co-developed with Lee Decker.



photo: J. Swab



AGRICULTURE DATEBOOK

October 20-22: ONLINE '87. Anaheim, CA, Disneyland Hotel. Contact: Corky Murry, 11 Tannery Lane, Weston, CT 06883. Tel.: (203) 227-8466.

October 25-27: AMERICAN AGRICULTURAL EDITORS' ASSOCIATION ANNUAL MEETING. Minneapolis, MN. Contact: (202) 785-6710.

October 25-28: INTERNATIONAL IRRIGATION EXPOSITION AND CONFERENCE. Orlando, FL, Orange County Convention & Civic Center. Contact: (703) 524-1200.

October 25-30. U.S. ANIMAL HEALTH ASSOC. ANNUAL MEETING. Salt Lake City, UT. Contact: (804) 266-3275.



photo: J. Swab

October 29 - November 1: HISTORY OF SCIENCE SOCIETY and SOCIETY FOR THE HISTORY OF TECHNOLOGY. Raleigh, NC. Contact: William A. Deiss, Society for the History of Natural History, Smithsonian Institution Archives, Washington, DC 20560.

October 30: 3RD NORTH AMERICAN MEETING OF THE SOCIETY FOR THE HISTORY OF NATURAL HISTORY. Raleigh, NC. Contact: William A. Deiss. (See above item for address.)

November 1-3: AMERICAN AGRICULTURE AT THE CROSSROADS. Kansas City, MO, Hyatt Regency Hotel. Contact: Soil Conservation Society of America, 7515 Northeast Ankeny Road, Ankeny, IA 50021. Tel.: (515) 289-2331.





SURPLUS PUBLICATIONS

The National Agricultural Library will make available the following surplus publications to any interested organization that regularly sends free publications to NAL, including most Federal, land-grant, and agricultural research institutions as well as many others. Foreign institutions will need to provide a U.S. mailing address or make other special arrangements with U.S. sources for shipment of material. Listed titles may be requested up to six months following announcement. If interested, please write to:

National Agricultural Library, USDA,
Attn: Gift and Exchange, Room 002,
Beltsville, MD 20705 (enclose an
addressed label); or call Susan Fugate,
(301) 344-3866.

Agricultural Economics Research. Vol. 1-21, 1949-1969.

Agronomy Journal. Vol. 65, 1973; 67-73, 1975-1981.

American Journal of Botany. Vol. 58-60, 1971-1973; 62-63, 1975-1976; 67, 1980.

Annals of the Entomological Society of America. Vol. 49-67, 1956-1974.

Applied Microbiology. Vol. 15, 1967; 19-22, 1970-1971; 27-30, 1974-1975.

Arnoldia. Vol. 30-46, 1970-1986.

Canadian Entomologist. Vol. 58-70, 1921-1938; 96-104, 1964-1972.

Food Technology. Vol. 36-39, 1982-1985.

Genetic Abstracts. Vol. 3-6, 1971-1974.

Journal of Economic Entomology. Vol. 37-67, 1944-1974.

Journal of Energy. Vol. 6, 1982.

Journal of Nematology. Vol. 1-13, 1969-1981.

Microbiological Reviews. Vol. 40-42, 1976-1978; 45-47, 1981-1983.

National Hog Farmer. 1975-1978, 1980-1981.

1978 Census of Agriculture. Vol. 1, pts. 1-50.

Plant Disease Reporter. Vol. 58, 1974; 61-63, 1977-1979.

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Representatives of the Food and Drug Administration (FDA) and USDA signed an Interagency Agreement on July 8, 1987, to provide for cooperation and the sharing of information in areas of mutual interest. Seated (l-r): Joseph H. Howard, Director, NAL; Dr. Sanford A. Miller, Director, Center for Food Safety and Applied Nutrition (CFSAN), FDA; Dr. Bert Hawkins, Administrator, Animal and Plant Health Inspection Service (APHIS), USDA; and Dr. Terry Kinney, Administrator, Agricultural Research Service (ARS). Standing (l-r): Samuel T. Waters, Associate Director, NAL; Dr. Ralph Ross, Deputy Assistant Administrator, ARS; Dr. Mary Carter, Associate Administrator, ARS; and Bradley Rosenthal, Director, Office of Management, CFSAN, FDA.